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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/720,420 | 11/24/2003 | Yong Qiu | NTP-116US | 5119 |

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| EXAMINER | |
|---|---|
| SANTIAGO, MARICELI | |
| **ART UNIT** | **PAPER NUMBER** |
| 2879 | |

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/720,420 | QIU ET AL. | |
| | Examiner | Art Unit | |
| | Mariceli Santiago | 2879 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-10 and 23-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 23-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/24/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

The Amendment, filed on January 13, 2006, has been entered and acknowledged by the Examiner.

Cancellation of claims 11-22 has been entered.

Claims 1-10 and 21-32 are pending in the instant application.

Applicant's election without traverse of Group I, claims 1-10 in the reply filed on January 13, 2006 is acknowledged.

### *Claim Objections*

Claim 23 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. Claim 23 recites the same limitation of "selected from the group consisting of poly(methyl methacrylate), poly(ethyl methacrylate), and UV curable resins" as stated in previous claim 4.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 recites "selected from the group consisting of poly(methyl methacrylate), poly(ethyl methacrylate), and UV curable resins", it is unclear which layer is selected form the claim materials, for examination purposes it would be construed as referring to the polymer material layers.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9 and 23-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Graff et al. (US 6,570,325).

Regarding claim 1, Graff discloses an organic light-emitting device comprising a transparent substrate (105), an anode layer, a cathode layer, organic functional layers sandwiched between the anode layer and the cathode layer (110, Column 1, lines 18-29), and an encapsulation layer (115) fabricated on one side or both sides of the device, wherein, the encapsulation layer includes a thin multilayer structure (115) which has a period number (n) of alternating layers formed of a polymer material layer (120, 125, Column 8, lines 33-63) and a ceramic material layer (130, Column 6, lines 22-54), the encapsulation layer also includes a thick organic insulation layer on top of the thin multilayer structure, which is made up of polymer materials (epoxy, Column 10, lines 7-14).

Regarding claim 2, Graff discloses an organic light-emitting device wherein the substrate of the device includes one of glass and plastic (Column 6, lines 5-21).

Regarding claim 3, Graff discloses an organic light-emitting device wherein the period number of the thin multilayer structure is an integer in the range of 1 to 10 (Column 6, lines 1-4).

Regarding claims 4 and 23, Graff discloses an organic light-emitting device wherein the polymer material layers in the thin film structure include one polymer selected from the group consisting of poly(methyl methacrylate), poly(ethyl methacrylate), and UV curable resins (Column 8, lines 33-63).

Regarding claim 5, Graff discloses an organic light-emitting device wherein the polymer material layers in the thin film structure falls within the range of about 50 to 1000 nm in thickness (Column 5, lines 7-10).

Regarding claim 6, Graff discloses an organic light-emitting device wherein the ceramic material layers in the thin film structure include one material selected from the group consisting of nitrides, oxides, and nitrogen oxides (Column 6, lines 22-54).

Regarding claim 7, Graff discloses an organic light-emitting device wherein the ceramic material layers in the thin film structure falls within the range of about 10 to 1000 nm in thickness (Column 5, lines 7-10).

Regarding claim 8, Graff discloses an organic light-emitting device wherein the ceramic material layers in the thin film structure include one material selected from the group consisting of silicon nitride, aluminum nitride, titanium nitride, silicon oxide, aluminum oxide, titanium oxide, silicon nitrogen oxide, aluminum nitrogen oxide and titanium nitrogen oxide (Column 6, lines 22-54).

Regarding claim 9, Graff discloses an organic light-emitting device wherein the thick organic insulation layer in the encapsulation layer includes UV curable resins (epoxy, Column 10, lines 7-14).

Regarding claim 24, Graff discloses an encapsulation layer comprising a thin multilayer structure which has a period number of alternating layers formed of a polymer material layer (Column 8, lines 33-63) and a ceramic material layer (Column 6, lines 22-54), the encapsulation layer also includes a thick organic insulation layer on top of the thin multilayer structure, which is made up of polymer material (epoxy, Column 10, lines 7-14).

Regarding claim 25, Graff discloses an encapsulation layer wherein the period number of the thin multilayer structure is an integer in the range of 1 to 10 (Column 6, lines 1-4).

Regarding claim 26, Graff discloses an encapsulation layer wherein the polymer material layers in the thin film structure include one polymer selected from the group consisting of poly(methyl methacrylate), poly(ethyl methacrylate), and UV curable resins (Column 8, lines 33-63).

Regarding claim 27, Graff discloses an encapsulation layer wherein the polymer material layers in the thin film structure falls within the range of about 50 to 1000 nm in thickness (Column 5, lines 7-10).

Regarding claim 28, Graff discloses an encapsulation layer wherein the ceramic material layers in the thin film structure include one material selected from the group consisting of nitrides, oxides, and nitrogen oxides (Column 6, lines 22-54).

Regarding claim 29, Graff discloses an encapsulation layer wherein the ceramic material layers in the thin film structure falls within the range of about 10 to 1000 nm in thickness (Column 5, lines 7-10).

Regarding claim 30, Graff discloses an encapsulation layer wherein the ceramic material layers in the thin film structure include one material selected from the group consisting of silicon nitride, aluminum nitride, titanium nitride, silicon oxide, aluminum oxide, titanium oxide, silicon nitrogen oxide, aluminum nitrogen oxide and titanium nitrogen oxide (Column 6, lines 22-54).

Regarding claim 31, Graff discloses an encapsulation layer wherein the thick organic insulation layer in the encapsulation layer includes UV curable resins (epoxy, Column 10, lines 7-14).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (US 6,570,325).

Regarding claims 10 and 32, Graff fails to disclose the limitation of the thick organic insulation layer in the encapsulation layer is in the range of about 10 to 1000 μm in thickness. At the time the invention was made, it would have been an obvious matter of design engineering to a person of ordinary skill in the art to provide the thick organic insulation layer with a thickness in the range of about 10 to 1000 μm since applicant's claimed layer thickness does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teaching applied. Furthermore, one skilled in the art would reasonable expect applicant's invention to perform equally well with either the organic insulation layer disclosed by Graff or the claimed organic insulation layer with a thickness in the range of about 10 to 1000 μm since both

organic insulation layers perform the same function of further protecting the stack of alternating ceramic and polymeric layers. Accordingly, it would have been an obvious matter of design engineering to modify the device of Graff to obtain the invention as specified in claims 10 and 32.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/30/06
Mariceli Santiago
Primary Examiner
Art Unit 2879